

CLAIMS

What is claimed is:

1. An optical sensor system configured to be mounted to a vehicle, comprising:
at least one optical sensor and at least one lens; and
at least one electro-optic variable aperture positioned between said at least one optical sensor and said at least one lens along an optical axis of said optical sensor.
2. An optical sensor system as in claim 1 wherein said electro-optic variable aperture comprises an electro-optic medium selected from the group comprising: a solution-phase medium, a surface confined medium, a solid state medium and an electro-deposition medium.
3. An optical sensor system as in claim 1, said electro-optic variable aperture comprising at least one substrate comprising a convex inner surface.
4. An optical sensor system as in claim 1, said electro-optic variable aperture comprising at least one substrate comprising an electrode layer on at least one surface comprising a variable sheet resistance.
5. An optical sensor system as in claim 4 wherein said variable sheet resistance defines a series of concentric rings and, or, a circle.
6. An optical sensor system as in claim 5, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.

7. An optical sensor system as in claim 1, said electro-optic variable aperture comprising an electro-optic medium comprising varying concentrations of active materials.
8. An optical sensor system as in claim 7 wherein said varying concentrations of active materials define a series of concentric rings and, or, a circle.
9. An optical sensor system as in claim 8, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.
10. An optical sensor system as in claim 1, said electro-optic variable aperture comprising a cell spacing of about $50\mu\text{m}$.
11. An optical sensor system as in claim 1, said electro-optic variable aperture comprising at least one substrate comprising an electrode comprising a sheet resistance greater than about $80\Omega/\square$.
12. An optical sensor system as in claim 1, said electro-optic variable aperture comprising a highly concentrated electro-optic medium.
13. An optical sensor system as in claim 1 further comprising a control configured to at least periodically shunt said electro-optic variable aperture.
14. An optical sensor system configured to be mounted to a vehicle, comprising:
at least one electro-optic variable aperture comprising at least a center area with different light ray attenuation characteristics than an area at least partially surrounding said center area.

15. An optical sensor system as in claim 14 wherein said electro-optic variable aperture comprises an electro-optic medium selected from the group comprising: a solution-phase medium, a surface confined medium, a solid state medium and an electro-deposition medium.
16. An optical sensor system as in claim 14, said electro-optic variable aperture comprising at least one substrate comprising a convex inner surface.
17. An optical sensor system as in claim 14, said electro-optic variable aperture comprising at least one substrate comprising an electrode layer on at least one surface comprising a variable sheet resistance.
18. An optical sensor system as in claim 17 wherein said variable sheet resistance defines a series of concentric rings and, or, a circle.
19. An optical sensor system as in claim 18, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.
20. An optical sensor system as in claim 14, said electro-optic variable aperture comprising an electro-optic medium comprising varying concentrations of active materials.
21. An optical sensor system as in claim 20 wherein said varying concentrations of active materials define a series of concentric rings and, or, a circle.
22. An optical sensor system as in claim 21, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.

23. An optical sensor system as in claim 14, said electro-optic variable aperture comprising a cell spacing of about 50 μ m.
24. An optical sensor system as in claim 14, said electro-optic variable aperture comprising at least one substrate comprising an electrode comprising a sheet resistance greater than about 80 Ω/\square .
25. An optical sensor system as in claim 14, said electro-optic variable aperture comprising a highly concentrated electro-optic medium.
26. An optical sensor system as in claim 14 further comprising a control configured to at least periodically shunt said electro-optic variable aperture.
27. An optical sensor system configured to be mounted to a vehicle, comprising:
at least one optical sensor; and
at least one electro-optic variable aperture positioned along an optical path of said at least one optical sensor, said electro-optic variable aperture is operable to selectively attenuate light rays.
28. An optical sensor system as in claim 27 wherein said electro-optic variable aperture comprises an electro-optic medium selected from the group comprising: a solution-phase medium, a surface confined medium, a solid state medium and an electro-deposition medium.
29. An optical sensor system as in claim 27, said electro-optic variable aperture comprising at least one substrate comprising a convex inner surface.

30. An optical sensor system as in claim 27, said electro-optic variable aperture comprising at least one substrate comprising an electrode layer on at least one surface comprising a variable sheet resistance.
31. An optical sensor system as in claim 30 wherein said variable sheet resistance defines a series of concentric rings and, or, a circle.
32. An optical sensor system as in claim 31, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.
33. An optical sensor system as in claim 27, said electro-optic variable aperture comprising an electro-optic medium comprising varying concentrations of active materials.
34. An optical sensor system as in claim 33 wherein said varying concentrations of active materials define a series of concentric rings and, or, a circle.
35. An optical sensor system as in claim 34, said series of concentric rings comprising at least one inner ring or circle comprising a higher sheet resistance than at least one outer ring.
36. An optical sensor system as in claim 27, said electro-optic variable aperture comprising a cell spacing of about $50\mu\text{m}$.
37. An optical sensor system as in claim 27, said electro-optic variable aperture comprising at least one substrate comprising an electrode comprising a sheet resistance greater than about $80\Omega/\square$.

38. An optical sensor system as in claim 27, said electro-optic variable aperture comprising a highly concentrated electro-optic medium.

39. An optical sensor system as in claim 27 further comprising a control configured to at least periodically shunt said electro-optic variable aperture.